Science-based assessment of international climate policy

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(with support from Steffen Brunner)

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P I K

MCC
Mercator Research Institute on
Global Commons and Climate Change

berlin

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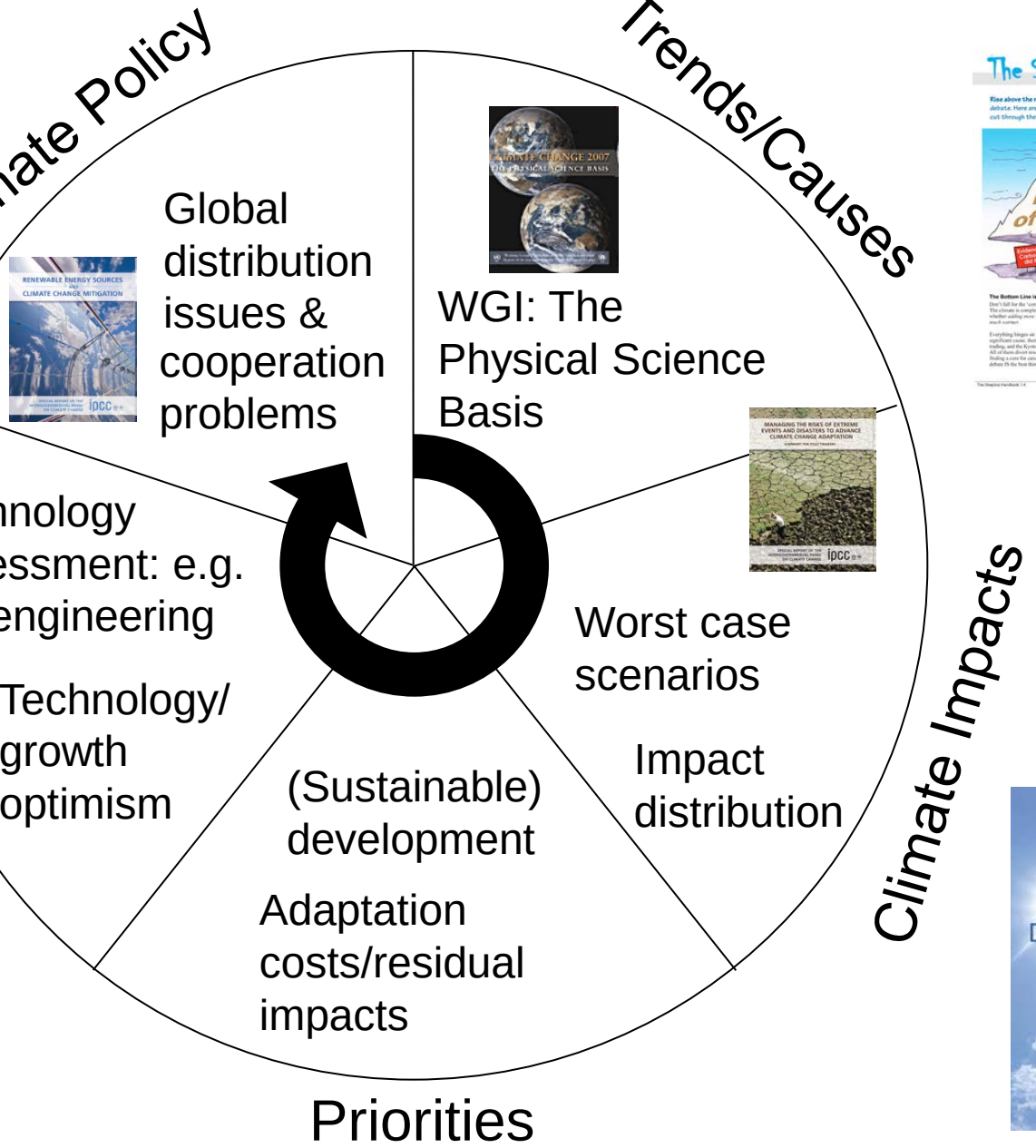
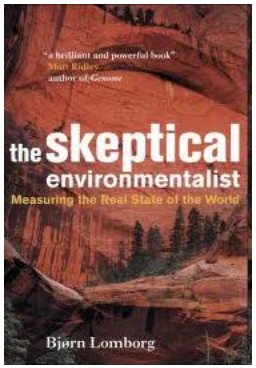
INTERGOVERNMENTAL PANEL ON climate change
WMO UNEP
Working Group III (WG III) – Mitigation of Climate Change

Five forms of climate scepticism

„The collapse of the fact/value dichotomy“





Scientific assessment can be broadly defined as:

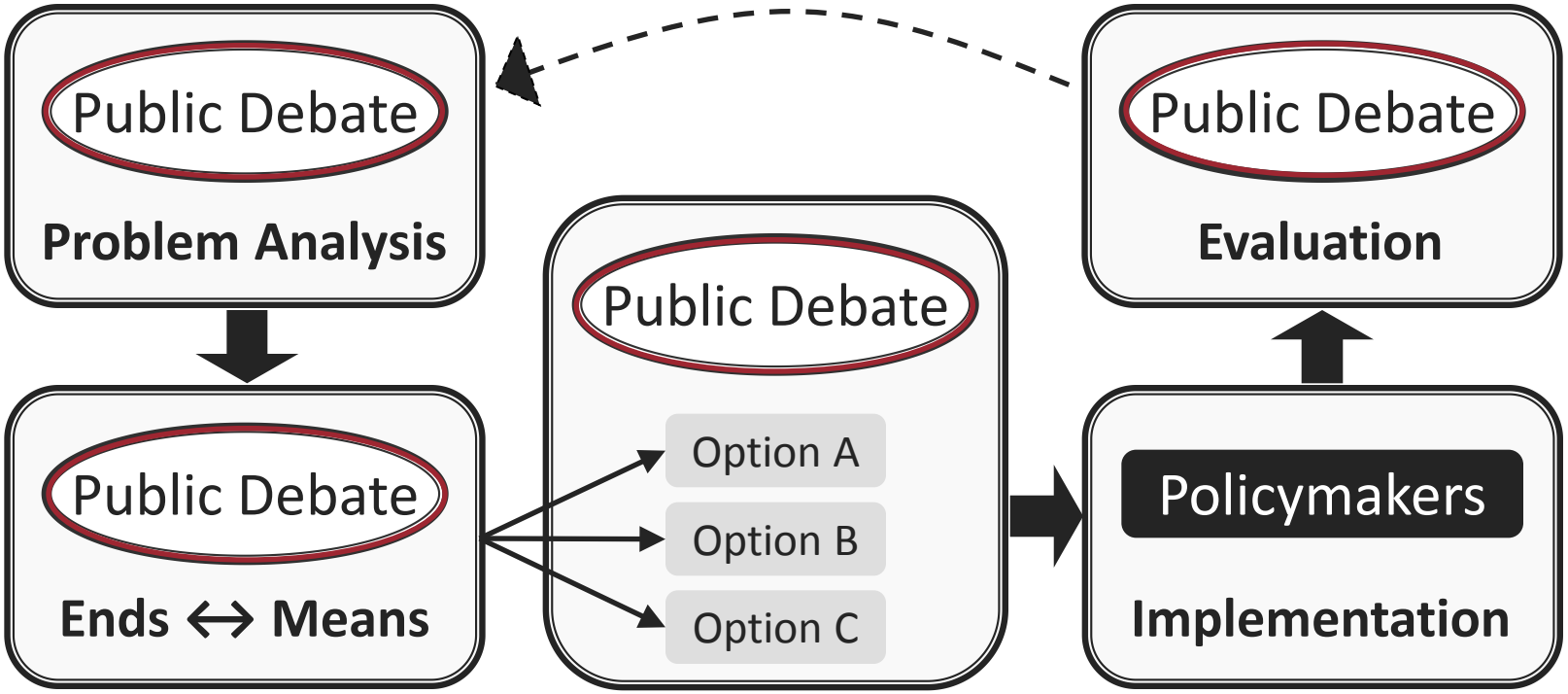
Using scientific methods to
explore the relevant solution space

with a view toward making
underlying value judgments for evaluation explicit

in a form intended to be
relevant for decision making

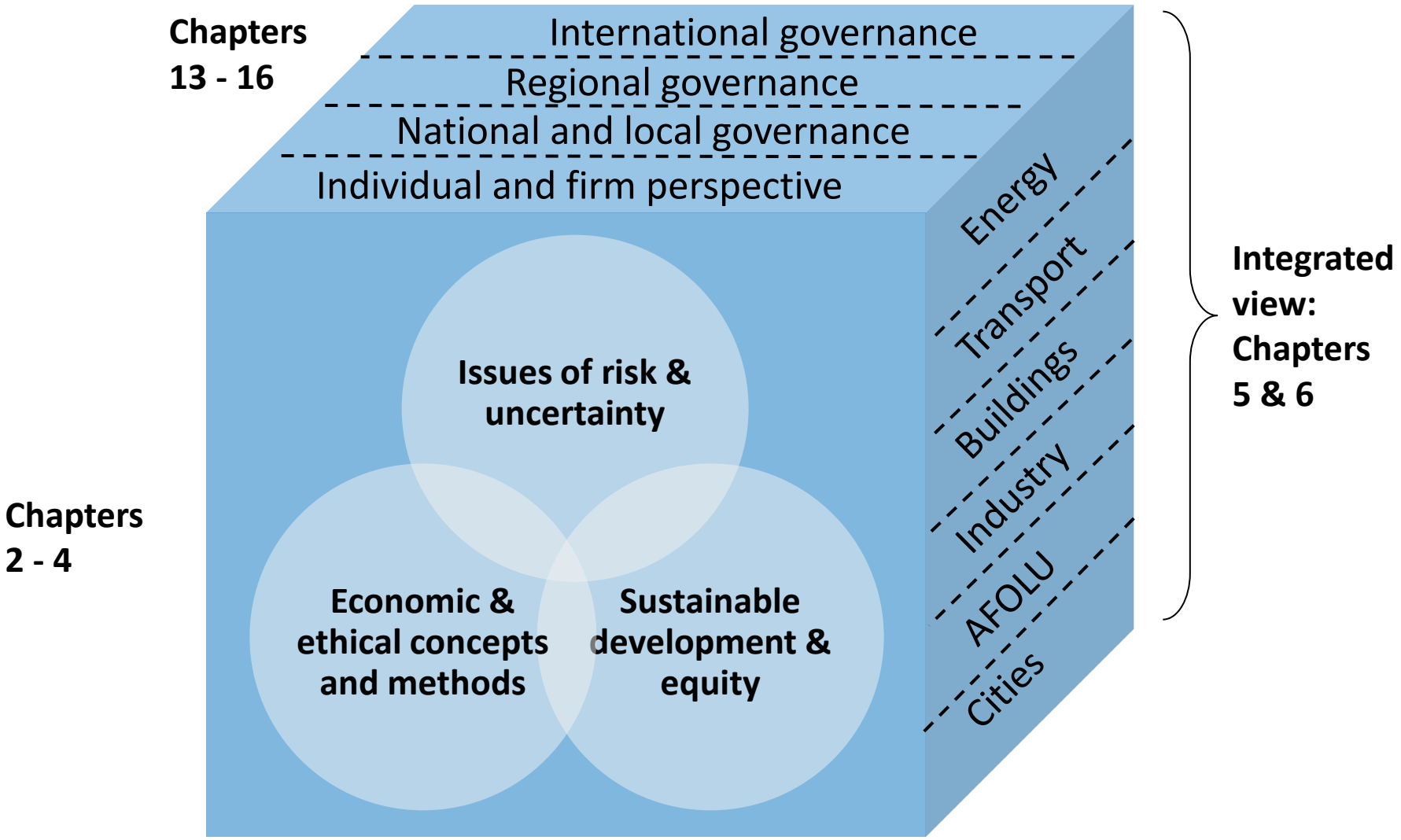
WG III AR5 assessment philosophy based on comprehensive public debate

- The pragmatic-enlightened model (PEM) of scientific policy advice

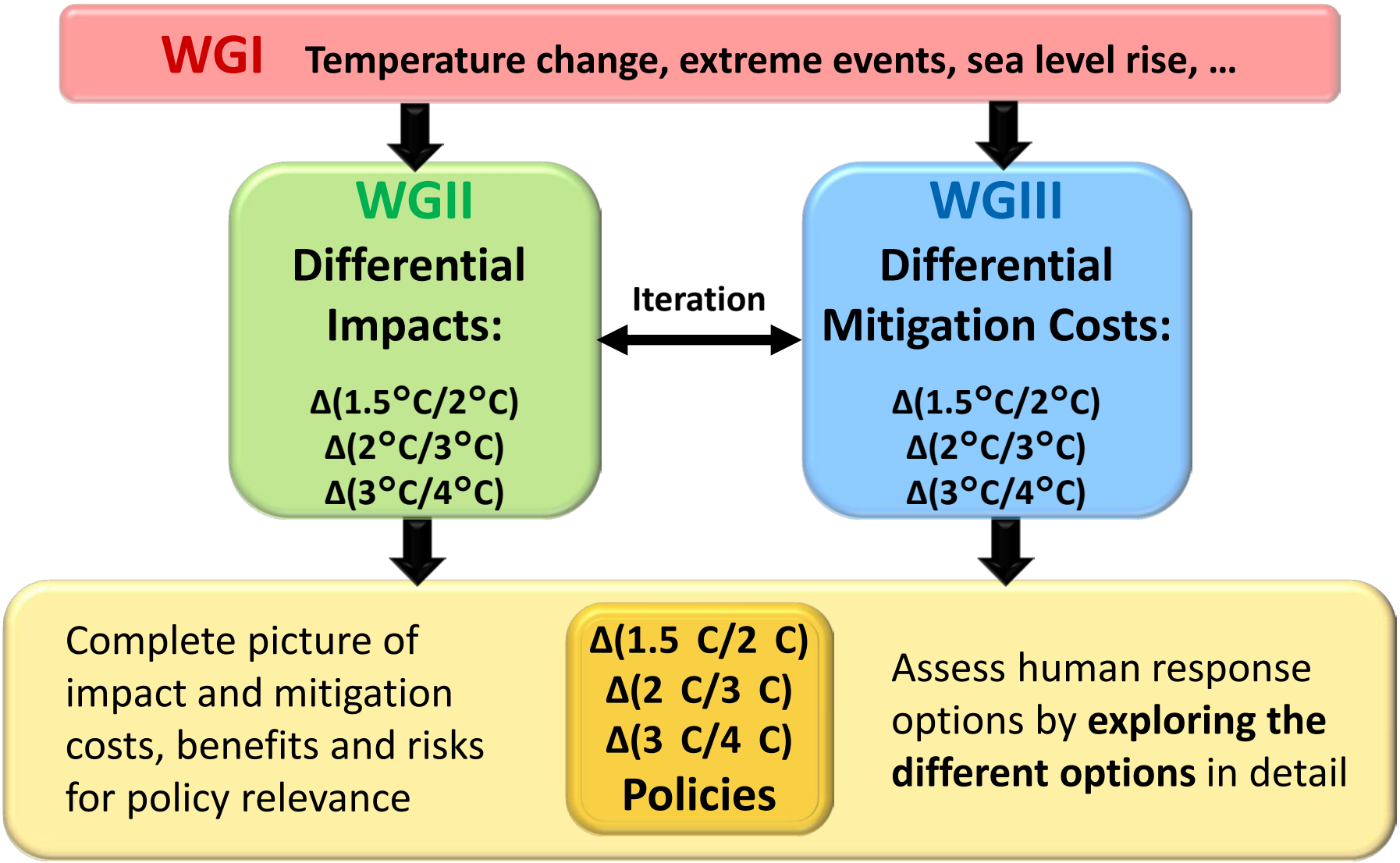


Source: Edenhofer/Kowarsch, forthcoming

What AR5 tries to do



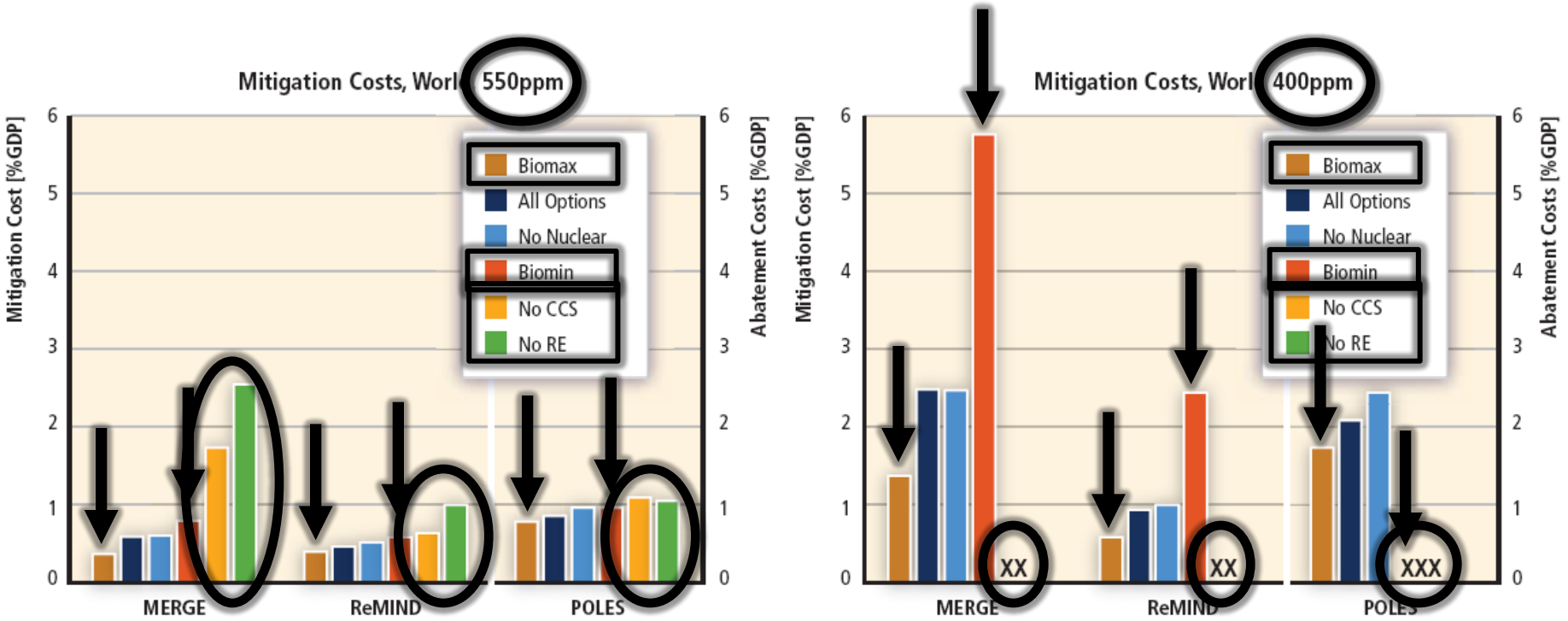
Need for consistent scenario information



Exploring differential mitigation costs

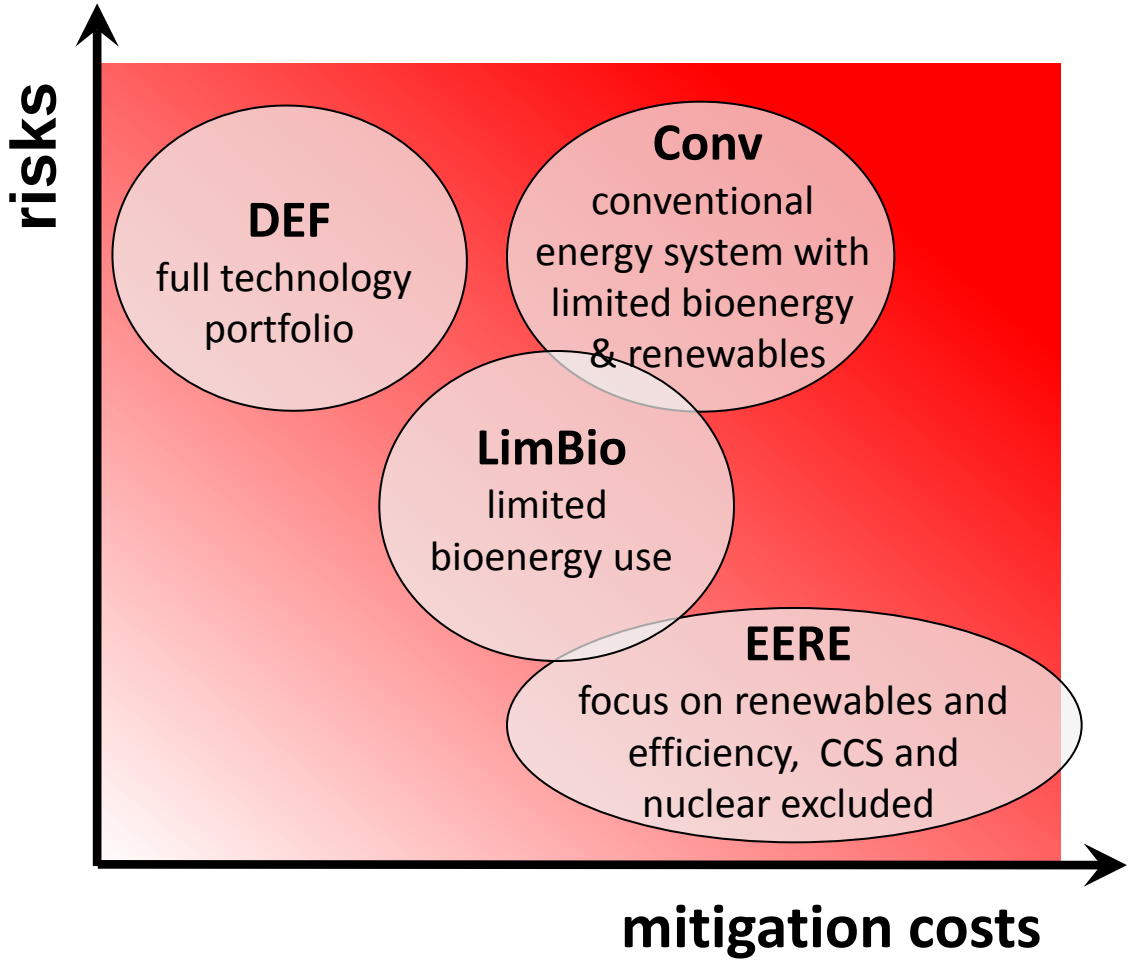
WGIII
Differential Mitigation Costs

Costs depend on:
- Stabilization target
- Use of **biomass**
- Availability of technologies, especially RE and CCS



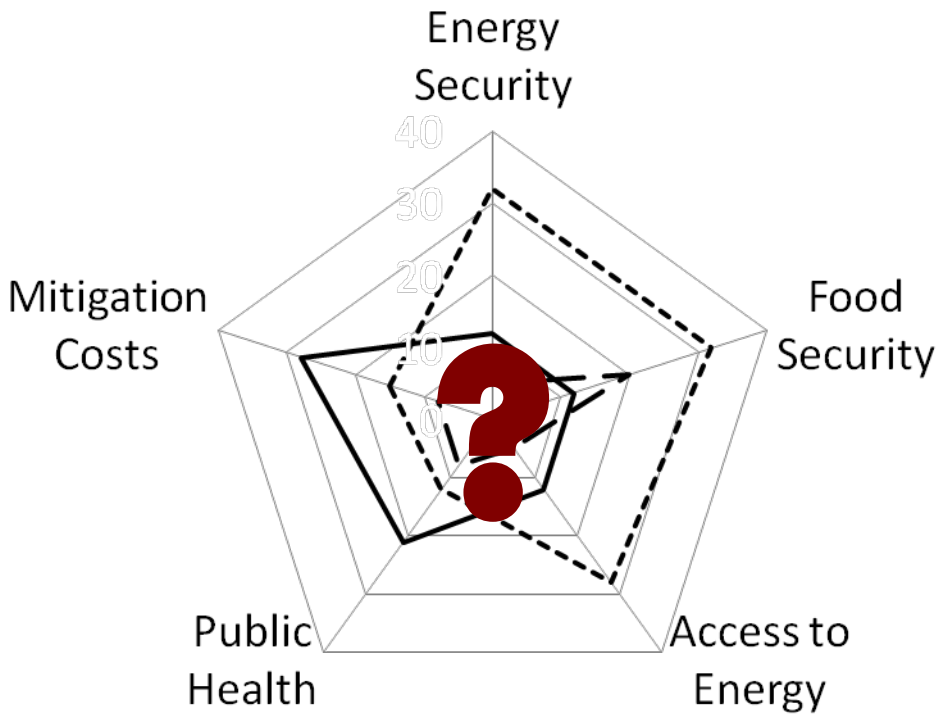
IPCC (2011), Edenhofer et al. (2010)

Mitigation costs vs. risks for stabilization scenarios



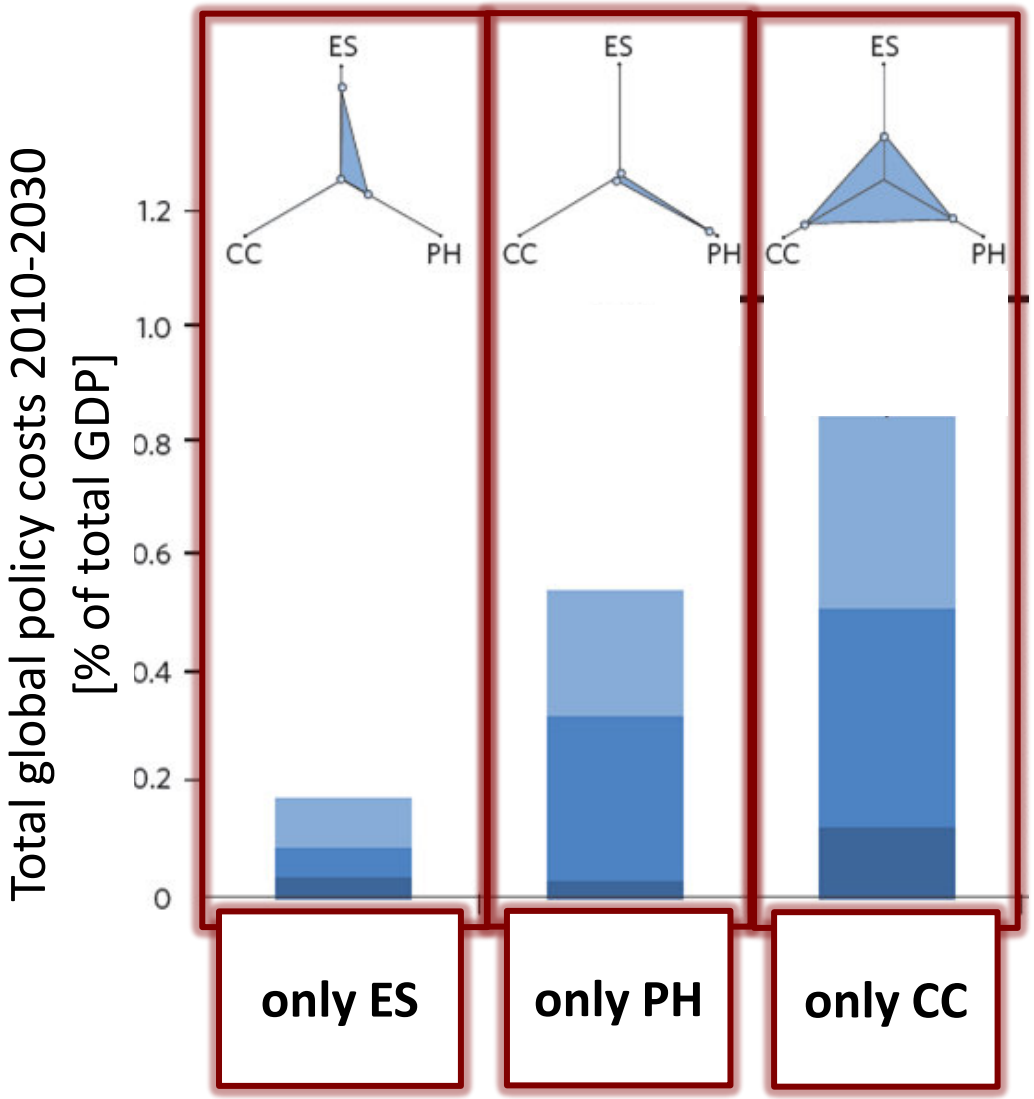
From a single-objective world to a multi-objective world

- IAMs usually explore transformation pathways with respect to mitigation costs
- Importance of other sustainability objectives!



- In a multi-objective world, **trade-offs and risks between societal objectives** become crucial for assessment making
- At the same time, multiple policy instruments have to be taken into account

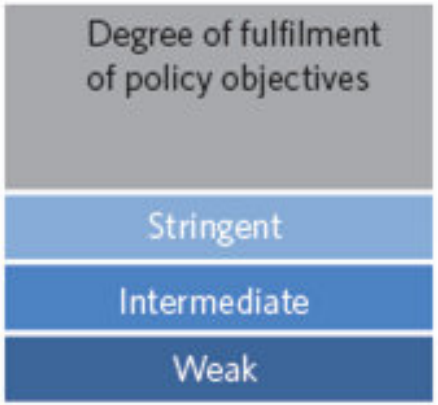
Co-benefits of climate change policies



Objectives:

ES: **E**nergy **S**ecurity
PH: Air **P**ollution & **H**ealth
CC: **C**limate **C**hange

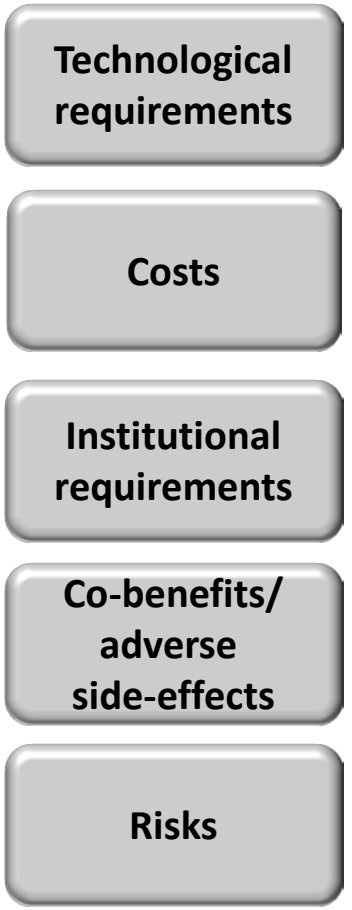
Climate change policies have multiple benefits and might be an appropriate entry point for meeting multiple objectives



GEA (2012)

Elements of a comprehensive assessment framework for low stabilization scenarios

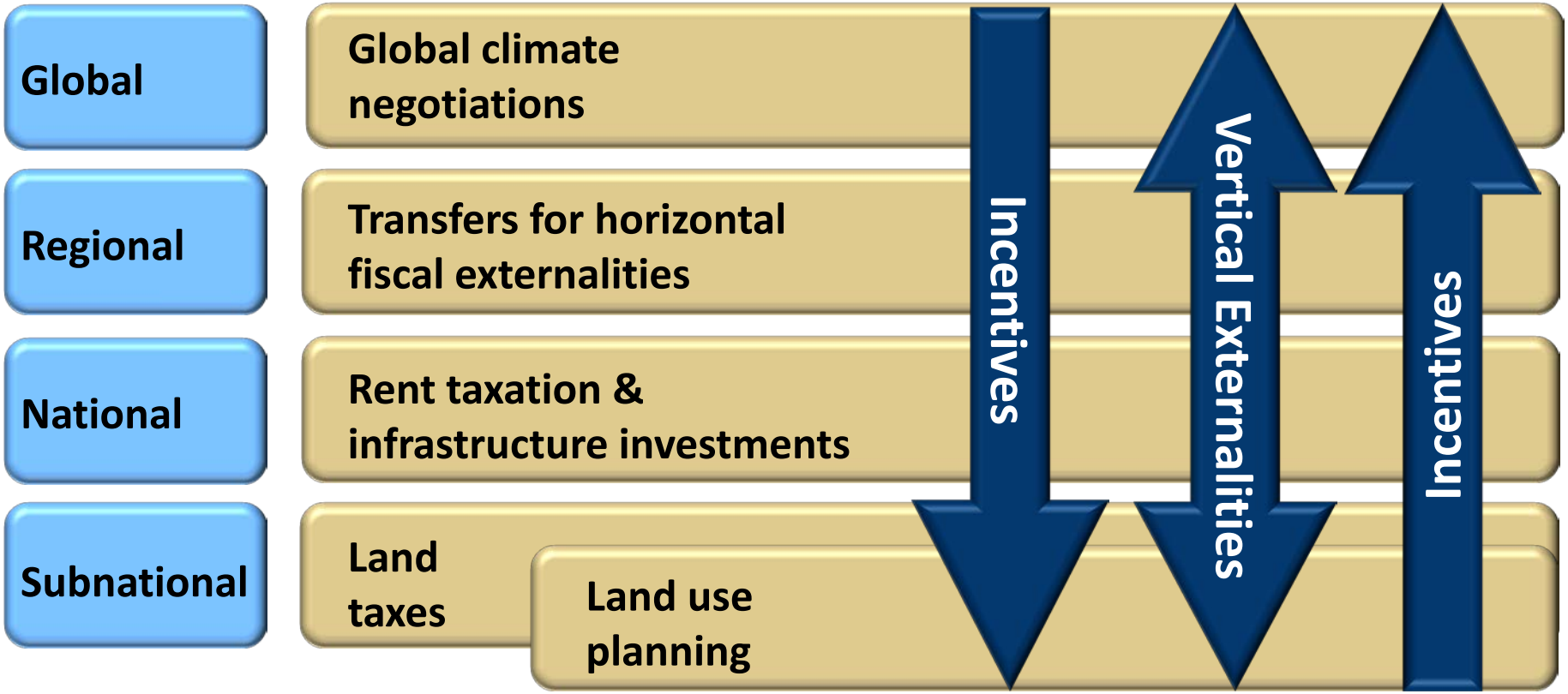
- What are the technological requirements?
- What are the adaptation and mitigation costs?
- What are the institutional requirements?
- What are co-benefits / adverse side-effects?
- What are the risks?



Towards further synthesis?
A personal view of the emerging literature (hypothetical!)

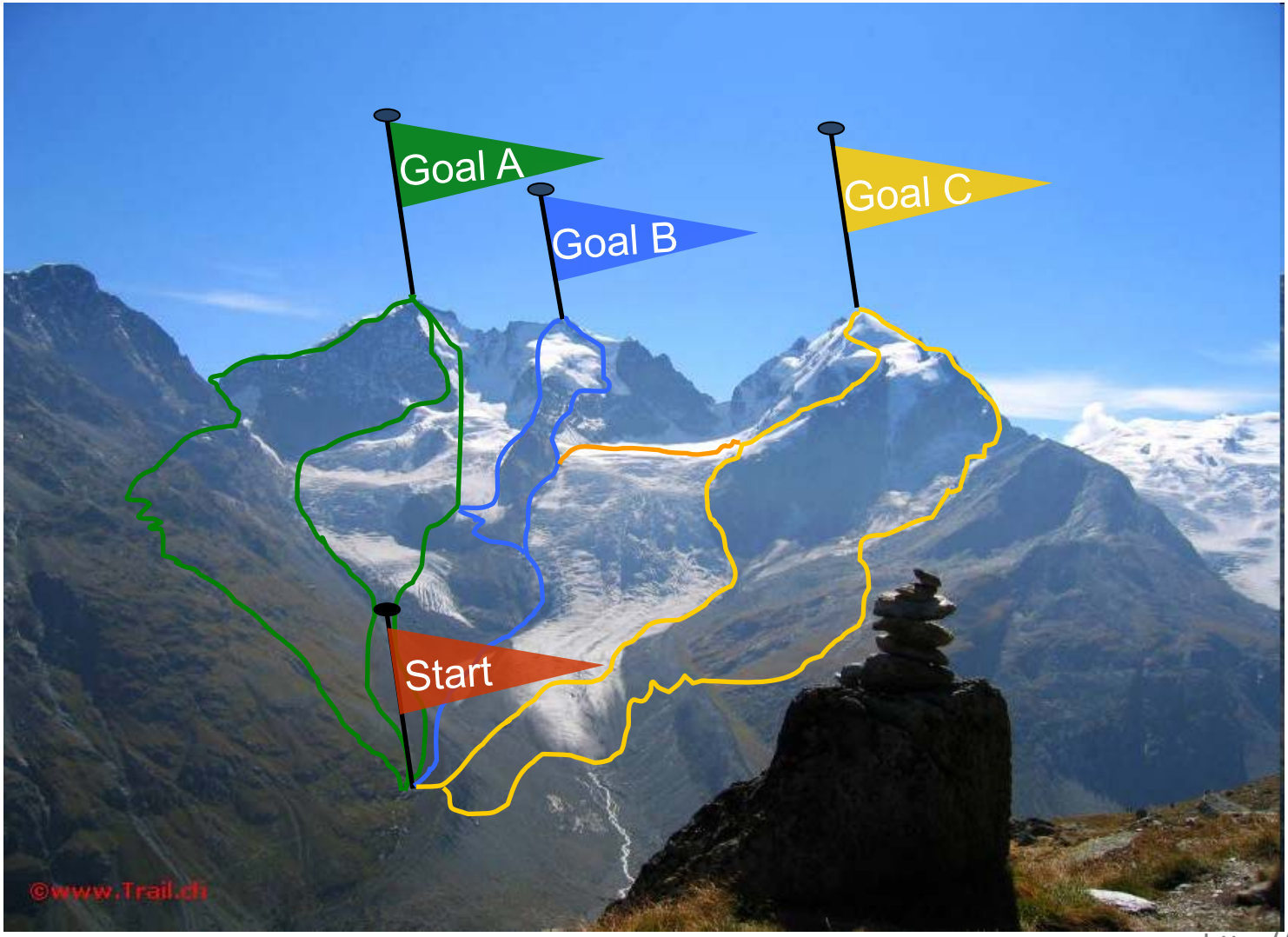
	Technological Requirements	Costs	Institutional Requirements	Co-Benefits/ Adverse Side-Effects	Risks
1.5	SRM+CDR+ Mitigation	Unknown	Unilateral Actions, Power Conflict	?	Large Risks
	Large-scale CDR + Mitigation	Very High	Global Cooperation	Land Degradation, Biodiversity Loss, Rising Food Prices	Social Conflicts on Land-Use, Food Security & Biodiversity
2	Mitigation + CDR [w/o Overshoot]	Low [Medium]	Global Cooperation	Profits in the Agricultural Sector, Employment	Social Conflicts on Food-Security, Biodiversity, Water
	Mitigation [w/o Overshoot]	High [Very High]	Global Cooperation	?	Remaining Risk of Dangerous Climate Change
3	Mitigation	Medium	Delayed Global Cooperation Possible	?	Dangerous Climate Change

Multi-level governance



- Local action influences national and international politics
- Lower mitigation costs improve the Nash-Equilibrium and facilitate cooperation

There is always more than one way…



http://www.trail.ch